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Ontology in Cognitive Perspective

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Abstract Ontology cannot be left to the natural sciences, if only because it deals also with hypothetical and fictional objects. It pivots about proto-categorical issues relating to the features of objects of any and all kinds. This brings into its range issues that test the limits of knowledge by asking questions that are inherently unanswerable (for example: "What is an instance of an occurrence that no one ever mentions?"). And it raises issues of norms and values that science (in its usual configuration) does not address.

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1 The Mission of Ontology

Metaphysics is traditionally defined as the science of being qua being, and ontology is its central component, the systematic study of the range and bearing of the concept of being. Its task is to study and clarify the ideas and concepts that enable us to identify and explain the thought-instrumentalities by whose means we can come to understand the general features of being as such.

The term *ontology* came into use in 17th century German neo-scholasticism in line with a more taxonomically refined approach to metaphysics, based on the idea that ontology, the study of being-in-general, itself has several major departments, including

- *Theology*: supra-natural being
- *Cosmology*: celestial being

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And beyond this came the special sciences—physics (material being), biology (living being), psychology (mind-correlative being), and the like—whose specialized study replenished the larger-scale concept of metaphysics, gradually the usage of the term *ontology* developed in a way that made the term equivalent to metaphysics at large.

2 The Reach of Ontology

Perhaps the most basic fact about being is that there are many different kinds and types of it. And this recognition leads straightway to one of the fundamental thesis of ontology:

- to be is to be an item of a certain type or kind.

To be is thus to function in a well-defined realm of items is to have being (of sorts). This of course means that there are going to be many different kinds of entities that qualify in some way or other as beings. First and most fundamentally, we shall have to distinguish between mere items (*entia*) and real-things-in-the-world (*realia*), items that have a physical embodiment through location in space/time. Numbers or fictional characters have a being of sorts, they figure as members of domains of things of their kind. But this of course does not mean that they have actual existence as real-things-in-the-world.

On such basis, it becomes a key task of ontology to elaborate and elucidate the concepts and distinctions on which an instructive classification of the realm of being can be founded.

The various special sciences investigate the nature of reality. Why not just leave ontology as a whole in their able hands?

Simply because there is more to being than being part of the natural world's actual reality. There are many sorts of items that have a being outside the scope of spatio-temporal existence that forms the realm of natural reality—of physical objects in space and time. But there are more beings than reals, seeing that there are also the manifolds of:

- Abstract objects (e.g., rights and obligations)
- Mathematical objects (e.g., shapes and quantities)
- Hypothetical objects (the North Pole, the Equator)
- Fictional objects (Puck, The Easter Bunny)

Ontology overall has to concern itself with these matters as well.

It would be not altogether unjust to say that the present state of ontology is confused. For while there is some agreement on the issues and questions that characterize the description, there is precious little agreement as to thesis and answers. There seem to be virtually as many standpoints in ontology as there are ontologists, most of them looking to very different areas of inspiration: logic and language, natural, science, phenomenology, philosophical anthropology, socio-potential arrangements, theology, etc.

Given the rather confused state of the subject, it is the present writer's inclination to go back to the classical first principles that figure on the tradition of German idealism in the triad of Leibniz-Wolff-Kant and to begin deliberations from the standpoint that was rooted at this mainstream juncture of the tradition. For in beginning with the basics we are the more likely to stay on the secure path of relevancy to the core issues of the subject. And here we are well advanced to begin with categories—the thought instruments basis to ontological deliberation.

Ontology can never manage to distance itself significantly from epistemology. For our only access-way to what there is is via the gateway of what we think these to be. Consider the injunction: "Don't burden me with you ideas and beliefs about what there is, just tell me about what there really and actually is." This is a challenge that simply cannot be met. We can readily distinguish between the detail of Aristotle's conception of reality and reality itself. But we cannot manage to do the same on our own account. And so to investigate being profitably we must also concern ourselves for the ways and means of our knowledge of it. And here categories come into the foreground.

3 Categories

Items belong to the same category insofar as they provide *possible* (albeit not necessarily *correct*) answers to one and the same question. Some examples are "What is the color of that flower?" (Category: *colors.*) "How long did that process take?" (Category: *timespans.*) "What caused that rainstorm?" (Category: *meteorological situations.*) Categorical congeners are accordingly things of the same generic type in question-resolving contexts, and categories are thus coordinate with the range of answers we are prepared to contemplate as meaningful responses to a question. Accordingly, there will be many kind-correlative categories for every sort of particular. For example:

a person: sex, age, nationality, occupation, etc.
a book: genre, period, topic, culture context, etc.
a feast-day: memorial occasion, anniversary, acknowledgement-ritual, etc.

It is thus clear that thing-kinds will always be category excluding: feast-days unlike people cannot have an occupation.

Since categories are correlative with questions they delineate and canalize our efforts to secure information. They provide the conceptual *frame of reference* in terms of which we pose our questions about the nature of things—the cognitive scaffolding we employ in erecting our view of the world, or some sector thereof. "To think is to order," said Thomas Aquinas, and the categories we use are our conceptual ordering tools, our devices for setting out on the task of collecting, gathering, and arranging our thoughts about how things stand. The theory of categories is accordingly the study of thought-tools we use in forming and shaping the agenda of the issues that we face in our cognitive dealings the facts (or purported facts) of the world.

Category-engendering questions come in strata because one question leads to another. In this light there will be certain proto-questions with which inquiry begins, the elemental and elementary issues from which we start our cognitive explorations. Such questions relate to issues which are "superficial," as it were, in lying near the surface of inquiry and themselves involve no more than trivial presuppositions. But we are soon led to greater depths. The answers to our questions spawn the yet further questions for which they furnish presuppositions. And as we proceed along this question-and-answer route we come to increasingly sophisticated questions which arise out of our answers to earlier questions, and which themselves lead in turn to still more complex issues. (The game of 20-questions illustrates this phenomenon).

As far as philosophy itself is concerned, categories arise at two levels. At one level we have the philosophical *proto-categories* that are correlative with those proto-questions we face at the outset—the most basic and rudimentary questions that inaugurate and dissect the process of factual inquiry. These classical categories of philosophical inquiry derived from the Aristotelian tradition whose categories are defined by certain very fundamental questions that we have regarding any of the world's concrete things. Such questions are inventoried in Display 1, which—following Aristotle's indications—summarizes the most elemental and fundamental sorts of issues to be raised about anything in the domain of the real.

Display 1 Proto-categorical questions

Categorical process	Paradigm questions	Categorical themes
Identification [substance]	Which one?	Things or items
Quantification [quantity]	How many?; of what size of magnitude (in this or that respect?)	The measurement of things
Classification [quality]	Of what kind	Types or species of sortzalizing the item
Description [quality]	Of what properties?	Characterizing qualities, features, attributes, characterizations
Affiliation [relation]	Like what or which?	Similarity comparisons
Subordination [posture]	To what or which?	Pertinence relations of what or which
Location (spatial-temporal) [space, time]	When? where? whence? whither?	The positioning of things in frameworks of placement
Composition [possession]	Composed of what? how constituted?	The make-up and structuring of things
Process-characterization [action and passion]	In what way? by what means?	*Modus operandi* (modes of manner and means of comportment)
Rationalization (or explanation) [efficient cause]	Why so? how to be explained? by what agency?	Causal explanations
Function-specification [fixed cause]	To what end? for what purpose?	Purposes, aims, functions, teleological considerations

This register of proto-categories is based on the idea that any group of items with which we may deal will be identifiable objects that can be classified in some appropriate way and admit of description, interrelation, and the provision of some sort of rationale or explanation. These proto-categories map out the "frame of reference" defining the conceptual issues that shape our initial, most basic efforts at posing our descriptive and explanatory questions about the world. They are comparatively rudimentary because at this initial stage, we have not as yet moved on from the rough and ready resources of everyday life for the sophisticated precision of science where more subtle questions come to be posed. Accordingly, the protocategories contrast with the more sophisticated *S*-categories (*scientific* categories) that are correlative with the evolved and subsidiary questions we are eventually driven to in the pursuit of increasing detail and sophistication. However, to say that the proto-categories are rudimentary and basic is by no means to say that they operate *only* at the outset of inquiry. Rather, their fundamentality is further indicated by their pervasiveness.

4 Key Ontological Concepts

The mechanism of categorical distinctions and the issue of taxonomy that follows in its wake is one of the centerpieces of ontological deliberation. Categories are the supporting pillars upon which the systematization of ontological knowledge comes to be constructed.

Analysis of the protocategories and the distinction they facilitate provides for the key relations among objects that form the pivotal factors of ontological concern:

cause/effect
substance/process
precondition/result
active/passive
species/genus
unity/plurality
instance/kind

Such pairings implement and apply the protocategorical concepts and exemplify the different sorts of distinctions to which they give rise.

The ubiquitous applicability of these concepts endows them with a special importance in ontological deliberations. In particular, they provide the basis for principal distinctions at work in ontology:

Mundane versus super- or supra-natural
Natural versus artificial
Real versus fictional
Physical versus mental
Necessary versus contingent

All of there relate in some way to the ancient Greek distinction between *phusis* and *nomos*, between the works of nature and the works of man. Without the conceptual resources that revolve about theses distinctions ontology could not begin to do its work. They serve to characterize the principal sorts of being around which the deliberations of ontology unfold. Accordingly, the distinction between natural and artificial things (trees and poems for example) comes to be of particular significance. For artifice admits no "natural laws." Thus there are no laws of poetry, and the idea of a *science* of poetry comes close to constituting a contradiction in terms.

These considerations lay the groundwork for a transition to the crucially important idea of cross-categorical or syncategorematic ideas and principles whose applicability and validity holds across the entire range of categorically different types of things. For example:

preconditions/result
subordinate/superordinate
component/composite

Elucidating and illuminatory how these ontological relationships function requires effective resource to conceptual contrasts of this sort.

5 Limits of Knowledge

In the systematization of ontological knowledge the bearing of categorical distinctions is always at work. But it goes virtually without saying that our cognitive access to things in thought has to be mediated by the resources of language. It is thus an ontological principle that for us

- ~~To be is to be discussable~~

~~This thesis of course leads back straightaway to the aforementioned distinction between *being* (as figuring in some realism of practical deliberation) and *existence* as part of the constituents of the real world~~. For irrealia—nonexistent things—can of course also be objects of discussion. Moreover, what is at issue here is discussability *in principle*. And we must not be too parochial about this. The limits of language may (as Wittgenstein insisted) work to constitute the limits of OUR world, but they do not constitute the limits of THE world. And this is manifested in the very fact that our language reaches out beyond itself to lead us to the threshold of the unknown, and indeed even of the unknowable. An important insight of Kant's is at issue here: we can *think and talk* about a great deal more than we can ever *know* about by way of experimental contact.

It is a daunting fact that there is inevitable distinction between reality as it is and our putative reality—reality as we think it to be. And this consideration leads to the most rational and significant issue of ontology: the question of the limits of and limitations of out knowledge of the real.

In this connection it is essential to note some relatively simple but nevertheless far-reaching considerations regarding the project of rational inquiry and the limits of knowledge. Let *Kxp* as usual abbreviate "*x* knows that *p*." And now note the contrast between the contentions:

"*x* knows that something has the property *F*": $Kx(\exists u)Fy$

and

"*x* knows of something that *it* has the property *F*": $(\exists y)KxFu$

The variant placement of the quantifier means that there is a crucial different here, since in the second case, unlike the first, the knower in question is in a position specifically to identify the item at issue. Here in this second case our knower not merely knows generally and indefinitely that *something* has *F*, but knows concretely and specifically *what it is* that has *F*. The two cognitive situations are clearly very different. To know that someone is currently in the Library of Congress is one thing and to know *who* is there is quite another.

And this distinction has significant ramifications. For there is a crucial difference between the indefinite "I know that there is some fact that I do not know" and the specific "Such and such is a fact of which I know that I do not know it." The first is unproblematic but the second not, seeing that to know of something that it is a fact I must know it as such so that what is at issue is effectively a contradiction in terms. I can know about my ignorance only generally, *sub ratione generalitatis* at the level of indefiniteness, but I cannot know it in concrete and specific detail.

One can refer to an item in two distinctly different ways: either specifically and individually by means of naming or identifying characterization ("George Washington, the Father of our Country"), or obliquely and sortally as an item of a certain type or kind ("an American president born in the 18th century"). Now a peculiar and interesting mode of reference occurs when an item is referred to obliquely in such a way that its specific identification is flat-out precluded as a matter of principle. This phenomenon is illustrated by claims to the existence of

- a thing whose identity will never be known.
- an idea that has never occurred to anybody.
- an occurrence that no one has ever mentioned.
- an integer that is never individually specified.

Here those particular items that render $(\exists u)Fu$ true are *referentially inaccessible*: to indicate them individually and specifically as instances of the predicate at issue is *ipso facto* to unravel them as so-characterized items.[1]

The concept of an applicable but nevertheless noninstantiable predicate comes to view at this point. This is a predicate *F* whose realization is noninstantiable because while it is true *in abstracto* that this property is exemplified—that is $(\exists u)Fu$ will be true—nevertheless the very manner of its specification makes it impossible to identify any particular individual u_0 such that Fu_0 obtains. Accordingly:

[1] We can, of course, refer to such individuals and even to some extent describe them. But what we cannot do is to *identify* them in the sense specified in #7 above.

F is a *vagrant* predicate iff $(\exists u)Fu$ is true while nevertheless Fu_0 is false for each and every specifically identified u_0.

Such predicates are "vagrant" in the sense of *having no known address or fixed abode*: though they indeed have applications these cannot be specifically instanced—they cannot be pinned down and located in a particular spot. Predicates of this sort will be such that: one can show on the basis of general principles that there must be items to which they apply, while nevertheless one can also establish that no such items can ever be concretely identified.[2] We know there are such things but cannot specify them.

The following predicates present properties that are clearly noninstantiable in this way:

- Being an ever unstated (proposition, theory, etc.).
- Being a never-mentioned topic (idea, object, etc.).
- Being a truth (a fact) no one has ever realized (learned, stated).
- Being someone whom everyone has forgotten.
- Being a never-identified culprit.
- Being an issue no one has thought about since the 16th century.

Noninstantiability itself is certainly not something that is noninstantiable: many instances can be given.

In a larger, epistemic perspective one realizes perfectly well there are bound to be truths (or *facts*) that one does not know:

$$(\exists p)(p \,\&\, \sim Kip).$$

But of course I can identify no such specific p_0 for which I know

$$p_0 \,\&\, \sim Kip_0.$$

Thus while

$$(\exists x)Kx(\exists p)(p \,\&\, \sim Kxp)$$

can be maintained unproblematically,

$$(\exists x)(\exists p)Kx(p \,\&\, \sim Kxp)$$

cannot because it straightaway engenders a contradiction. The generic p at issue in that former thesis is thus in principle noninstantiable.

There are bound to be facts nobody knows. But no one can provide a certifiable instance of this phenomenon, so that

- being a fact nobody knows

is a model instance of a vagrant predicate.

We have to confront the crucial fact that our knowledge about matters of being and existence is going to be incomplete and indeed actually incompleteable.

[2] A uniquely characterizing description on the order of "the tallest person in the room" will single out a particular individual without specifically identifying him.

6 Relating Knowledge to Ignorance

It is an important aspect of the reality of things that detailed knowledge about the *extent* of our ignorance is unavailable to us. For what is at stake with this issue of extent is the ratio of the manifold of what one does know to the manifold of that what one does not. And it is impossible in the nature of things for me to get a clear fix on the latter. For the actual situation is not that of a crossword puzzle—or of geographic exploration—where the size of the *terra incognita* can be somehow measured in advance of securing the details that are going to be filled in. We can form no sensible estimate of the imponderable domain of what can be known but is not. To be sure, we can manage to compare what one person or group knows with what some other person or group knows. But mapping the realm of what is knowable as such is something that inevitably reaches beyond our powers. And for this reason any questions about the cognitive completeness of our present knowledge is and will remain inexorably unresolvable.

Overall, however, the situation is not as bleak as it may seem. For even though the thought and knowledge of finite beings is destined to be ever finite, it nevertheless has no fixed and determinate limits. Return to our analogy. As is counting integers, there is a limit beyond which we never *will* get. But there is no limit beyond which we never *can* get. For the circumstance that there is always room for linguistic variation—for new symbols, new combinations, new ideas, new truths and new knowledge—creates a potential for pushing our thought ever further. While the thought of finite beings is destined ever to be finite, it nevertheless has no fixed and determinable limits.

The line of thought operative in these deliberations was already mooted by Kant:

> [I]n natural philosophy, human reason admits of *limits* ("excluding limits", *Schranken*) but not of *boundaries* ("terminating limits", *Grenzen*), namely, it admits that something indeed lies without it, at which it can never arrive, but not that it will at any point find completion in its internal progress. ... [T]he possibility of new discoveries is infinite: and the same is the case with the discovery of new properties of nature, of new powers and laws by continued experience and its rational combination ...[3].

And here Kant was right. The cognitive range of finite beings is indeed limited. But it is also boundless because it is not limited in a way that blocks the prospect of cognitive access to ever new and continually different facts thereby affording an ever ampler and ever more adequate account of reality.

[3] *Prolegomena to any Future Metaphysics*, sect. 57. Compare the following passage from Charles Sanders Peirce: "For my part, I cannot admit the proposition of Kant—that there are certain impassable bound to human knowledge. … The history of science affords illustrations enough of the folly of saying that this, that, or the other can never be found out. Auguste Comte said that it was clearly impossible for man ever to learn anything of the chemical constitution of the fixed stars, but before his book had reached its readers the discovery which he had announced as impossible had been made. Legendre said of a certain proposition in the theory of numbers that, while it appeared to be true, it was most likely beyond the powers of the human mind to prove it; yet the next writer on the subject gave six independent demonstrations of the theorem." (Peirce 1931–1958)

This situation of the incompleteness and incompletability of our knowledge of fact has important implications for the prospects of carrying ontological theorizing to the perfection we would ideally like to achieve. For the agenda of ontology is teeming with seemingly irresolvable problems. Consider just a few examples.

6.1 Rationale Problems

Why are things as they are? How is one to account for the boundary where actual and merely possibles. Why are reality's contingent facts as they actually are?

6.2 Boundary Problems

Just where do the boundaries fall when the key distinctions of ontology are at issue? How are we to implement such key distinctions as natural/artificial, real/fictive, physical/mental, necessary/contingent, and the rest? And in specific—

6.3 Normativity Problems

Where lies the boundary where between the *is* and the *ought*; What is the rule of normativity in reality's scheme of things and in particular—

6.4 Value Problems

What role do the ideas of higher/lower, better/worse, older/inferior, good/evil, play in reality's scheme of things?

These are some of the most prominent problems arising in ontology. And ample experience serves to show that a convincing, consensus-engendering resolution of such issues is not a realistic prospect. No doubt one can devise a theory that is adequate from the angle of *one's own standpoint*. But the idea of a theory deemed acceptable by everyone is pie in the sky. The fact that ontological inquiry becomes *speculative*—that its deliberations are bound to contain the limits of what can be securely and uncontestably substantiated—is an effectively ineliminable feature of the subject.

7 Future Prospects and Challenges

And so there should be little wonder that the present state of ontology is confused and that there is little if any consensus in the fundamental issue of the subject. Sometimes it seems that every theorist has his own theory.[4] And there is little basis

[4] On this issue see Rescher (1985).

for thinking that the future will be any different from the past and realistic alternative to expecting the continuation of the contradiction of controversy.

Where is one to locate the blame for this less than happy state of affairs? The group of usual suspects is diverse: the shortcomings of inquirers, the inherent complexity of the subject, the intrinsic intractabiltiy of the problems. Does the fault lie with ourselves, the problems, the subject matter domain? Or all three in holistic interaction?

The fact of it is that on this meta-issue—explaining the absence of consensus in philosophy—there prevails exactly the same sort of dissensus that one encounters within the subject. After all, metaphilosophy is an integral component of the philosophy itself. And it should therefore occasion little surprise that the aspirations inherent in the mission of the discipline outrun the potential of the procedural instrumentalities available for its realization—the mechanisms of the very language we employ for a discussion of the issues.

So where is ontology to go from here? Positivistically inclined pessimists want to give up the entire subject. Optimists keep searching for the "Open Sesame" to a definitive resolution. Realists are prepared to work out a resolution satisfying to themselves without worrying about bringing everyone else on board.

However, all alike confront a common situation. And it is here, I think that what we must locate the core of ontology's future. For I see it, the key issue of ontology that is presently on the agenda is that of thinking through the ramifications and implications of the epistemic gap inherent in the fact that there is—inescapably—a discrepancy between reality—the realm of fact at large—and our knowledge of it.

The enormous strides in our scientific knowledge of nature that have unfolded exponentially since the days of Copernican Revolution have saddled us with the hybris of overconfidence in our cognitive powers. We are tempted to think ourselves to be on the brink of a definitive "theory of everything" that will afford us definite answers as to the nature and composition of the real.

As those proceeding deliberations regarding vagrant predicates indicate, there will be many situations in which we know generally that something holds within a group of but are inescapably unable to identify any individuals within the group for which this is the case. And this betokens the inherent incompletability of the ontological project of providing an adequate and accurate account of the nature of the real. For as regards our knowledge of things there are going to be unavoidable instances where the descent from generalities to specifics is simply beyond our powers and concretization is beyond our grasp. The world turns surd on us and the general principles in which philosophers deal are inadequate to resolve the issues.

Such considerations suggest that it is an important and perhaps paramount task of ontology in the future to think through and clarify the implications and ramifications of the limits to our ontological knowledge. For—to reemphasize—it is not that the limits of our language are the limits of *the* world: they are merely the limits of *our* world. And our world is no more than our model of the world—a model we have every reason to regard as imperfect and replete with errors—of omission and commission alike. It thus emerges as a prime challenge to ontology to come to terms with these situations in a reasonable and responsible manner so as to effect a workable compromise between our high aspirations and our limited capabilities.

References

Peirce CS (1931–1958) Collected papers of Charles Sanders Peirce, 2nd edn. vol VI. Harvard University Press, Cambridge, sect. 6.556

Rescher N (1985) The strife of systems. University of Pittsburgh Press, Pittsburgh